

REMARKS

In the Global System for Mobile Communications (GSM), the Home Public Land Mobile Network (HPLMN) of a mobile phone is identified by a Mobile Country Code (MCC) and Mobile Network Code (MNC) number pair contained within the International Mobile Subscriber Identity (IMSI) file on the Subscriber Identity Module (SIM) card resident in the mobile phone. For example, the MCC-MNC pair for the Raleigh, N.C. GSM HPLMN is 310-150. Note that the coverage of this HPLMN includes a large geographical area, including Charlotte and Atlanta, among other locations in the southeastern USA. Background at paragraph 1. Due to industry mergers and consolidation, wireless carriers can be a conglomeration of previously disjoint network operators, each having its own HPLMN.

A problem arises in that a mobile phone can only have one HPLMN identifier. Yet, a mobile phone can be considered in a home area even when it is outside its HPLMN area. This can occur when the mobile phone is within the coverage area of one of the other network operators that is under the aegis of the wireless carrier.

The present invention provides a mechanism for indicating when a mobile phone is in a home network even when the carrier spans multiple HPLMN coverage areas. This is significant since a mobile can only be linked to a single HPLMN. Moreover, the list of home networks within the aegis of a carrier can be updated since the information is stored in the E-ONS files on the SIM card. The SIM card is readily updateable in an automatic over-the-air fashion.

The present invention, specifically claim 1, recites a method of determining whether a mobile phone is currently in a home or a roaming network, the mobile phone including a SIM card resident thereon, the SIM card including an IMSI file, an OPL file, and a PNN file, each file having a record structure, the method comprising:

(Step A) - receiving, in the mobile phone, an over-the-air signal comprised of control data including public land mobile network (PLMN) data and location area information (LAI);

(Step B) - comparing the received PLMN data to PLMN data stored in the IMSI file on the SIM card, and if the received PLMN data matches the stored PLMN data, then determining that the current network is a home network; otherwise

(Step C) - checking whether the received LAI data is contained in the OPL file, and if not, then determining that the current network is a roaming network; otherwise

(Step D) checking if the PNN record that the OPL record points to is the first record of the PNN file, and if it is, then determining that the current network is a home network; otherwise

(Step E) determining that the current network is a roaming network.

The Examiner has rejected claims 1-4, 7-10, 13-16, and 19-22 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2003/0033689A1 to McElwain et al (hereinafter McElwain) in view of U.S. Patent No. 6,708,033 B1 to Linkola et al (hereinafter Linkola).

Regarding claim 1 the Examiner states that McElwain discloses a method, system, {and} computer program for determining whether a mobile phone is currently in a home network or a roaming network, comprising: a processor coupled with said SIM card (fig. 2, 170 and 15), receiving, in the mobile phone, an over-the-air signal comprised of control data including public land mobile network (PLMN) data and location area information (LAI) data (fig. 4A, step A); comparing the received PLMN data to PLMN data stored (paragraph 0045, step B), and if the received PLMN data matches the stored PLMN data, then determining that the current network is a home network (paragraph 0046, and Step C); otherwise checking whether the received LAI data is contained in the OPL file (step D), and if not then determining that the current network is a roaming network (step E); otherwise checking if the PNN record that the OPL record points to is the first record of the PNN file (paragraph 0057 , and step D), and if it is, then determining that the current network is a home network (step C); otherwise determining that the current network is a roaming network. (step E).

The Examiner further adds that McElwain, however, fails to disclose the mobile phone including a SIM card resident thereon, the SIM card including an IMSI file, an OPL file, and a PNN file, each file having a record structure. The Examiner then states that Linkola discloses a system changing the service profile of a mobile subscriber. Linkola, it is asserted, also discloses the mobile phone including a SIM card resident thereon, the SIM card including an IMSI file, an OPL file, and a PNN file, each file having a record structure (fig. 2A-C, and its descriptions).

The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify McElwain's method of determining the home network and include a SIM card on the mobile phone having IMSI, OPL, and PNN files, each having a record structure to determine whether the mobile phone is in a home or roam network.

Applicant respectfully submits that the cited references do not suggest the presently claimed invention, either singly or taken in any reasonable combination. The Examiner has mischaracterized the teachings of McElwain as applied to the present invention. McElwain teaches a method for relating a plurality of system identifications (SIDs) in a mobile device.

McElwain more specifically pertains to a method and apparatus for a mobile station to select a particular wireless service provider from which service is to be obtained. According to McElwain, a SID number is broadcast by each cell site and is used by the mobile station to determine whether the mobile station is operating in its home network, or whether it is operating in a roaming condition.

The present invention, however, utilizes the Enhanced Operator Name String (E-ONS) functionality included in mobile phones not SID identifiers. For purposes of the present invention, E-ONS can provide a means to distinguish home networks while eliminating the need for the mobile to be customized or even updated when a home network list is modified. The E-ONS feature is primarily intended to provide an algorithm for determining what to display on the mobile's display with respect to the current service provider information via an alphanumeric tag on the mobile user interface. E-ONS uses a relatively new SIM file called Operator PLMN List (OPL) to provide sets of PLMN ranges along with pointers to associated alphanumeric tags contained in another SIM file called PLMN Network Name (PNN).

The applicant respectfully submits that PLMN is not the same as a SID. As discussed, the PLMN is mobile telephone communications network established by a provider to facilitate mobile telecommunications services. The PLMN is identified by the Mobile Country Code (MCC) and Mobile Network Code (MNC) pair. For example, the MCC-MNC pair for Raleigh, North Carolina is GSM HPLMN 310-510. This is a 6 digit combination set by the network. However, a SID is a system identification number that is set by a carrier operating within a network. The SID is typically geographically linked to a zip code, McElwain at paragraph 15.

McElwain teaches a method for operating a wireless communication system of a type that transmits System Identification (SID) parameters to mobile stations, comprising: storing a SID that identifies a Home service provider for the mobile station; identifying a plurality of SIDs having a common spatial characteristic; storing the identified plurality of SIDs in a memory that is accessible by a mobile station; comparing a SID received from a wireless service provider to the stored plurality of SIDs; and upon any one of the plurality of stored SIDs matching the received SID, declaring the wireless service provider as being a Home service provider for the mobile station. McElwain at page 6 claim 1 and FIG. 4A.

McElwain teaches a two-step method of determining whether a SID received from a carrier will render the mobile station in a home or roaming condition. The first step compares the received SID with a SID previously stored in the mobile station that is designated as the home SID. The second step compares the received SID, which did not match with the stored SID, with list of "Cousin" SIDs. If the received SID matches a SID in either Step B or Step C, the mobile station is designated as in a home location.

The present invention, however, teaches a three-step comparison method utilizing wholly different parameters in a wholly different manner to determine whether a mobile station is in a home network or roaming network. The first step compares the received PLMN data with PLMN data stored on the mobile station's SIM card. The next step, if necessary, compares the received Location Area Information (LAI) data with LAI data stored in the Operator PLMN list (OPL).

The LAI data identifies the cell that a mobile telephone user is in. The LAI is a composite of the PLMN and a LAC (Location Area Code) identifier. The LAC is not the same as a SID. The LAC refers to the ability of a mobile network to subdivide and identify its coverage areas into smaller specific multiple location areas.

If the currently received LAI data does not match LAI data in the OPL file, the third step compares the received PNN record that the OPL record points to and determines whether it is the first record stored in the PNN file on the SIM Card.

Applicant respectfully submits that the three-step approach of comparing the received PLMN data and LAI data in the present invention is not taught or suggested by the McElwain/Linkola combination.

Linkola has been combined with McElwain for the sole purpose of expressly providing for a SIM card in an attempt to read on each element/step in claim 1 of the present invention. The Examiner, however, does not actually cite any reference to an OPL file or a PNN file anywhere in the Linkola reference. The Examiner has mistakenly assumed that the SIM cards alluded to in Linkola actually include the OPL and PNN files. A SIM card is essentially a removable memory device capable of storing data pertinent to a customer's account with a carrier. While some files are more or less standard on all SIM cards, other files are not. SIM cards can be provisioned over-the-air with new files (and software) as they are developed and utilized. It is inappropriate for the Examiner to assume that Linkola specifically includes either a PNN file or an OPL file on a SIM card without an explicit reference to same.

Even if Linkola is considered to include the OPL and PNN files, the use of these files cannot be merely substituted into the methodology of McElwain since McElwain's methodology

requires the use of SID data, not the more detailed PLMN-LAI data used by the present invention.

McElwain describes a two-step approach using SID data in which the currently broadcast SID is compared to the mobile phone's stored home SID. If there is no match, the current SID is compared to a static list of other SIDs that are deemed to be within the home network. The Examiner concedes that McElwain's method would need to be modified (as opposed to a secondary reference substitution of PLMN-LAI data instead of SID data) in order to emulate the methodology of the present invention. It is believed by applicants that the degree of modification required to modify McElwain based solely on the teachings of Linkola are not obvious to one of ordinary skill in the art. This is because the data used by the present invention (PLMN-LAI data as coded into an OPL file and a PNN file) is never explicitly described by Linkola. Without such a description, one can not come up with the idea to substitute the PLMN-LAI data as coded into an OPL file and a PNN file for the SID data of McElwain. Moreover, if such a data substitution was made, the steps for manipulating the data are different in the present invention as compared to McElwain. The steps are believed to be so different as to be unobvious without undue experimentation on the part of one of ordinary skill in the art.

Applicant, therefore, respectfully requests reconsideration and withdrawal of the 35 USC 103(a) rejection of claim 1 and its dependent claims. Independent claims 7, 13, and 19 recite similar clauses in their respective claims. Therefore, applicant also respectfully requests reconsideration and withdrawal of the 35 USC 103(a) rejection of claims 7, 13, and 19 and their respective dependent claims as well.

Respectfully submitted,



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